June 8, 1965 R. G. DAVIS 3,188,108

SMALL BOAT CARRIER

Original Filed Oct. 31, 1962

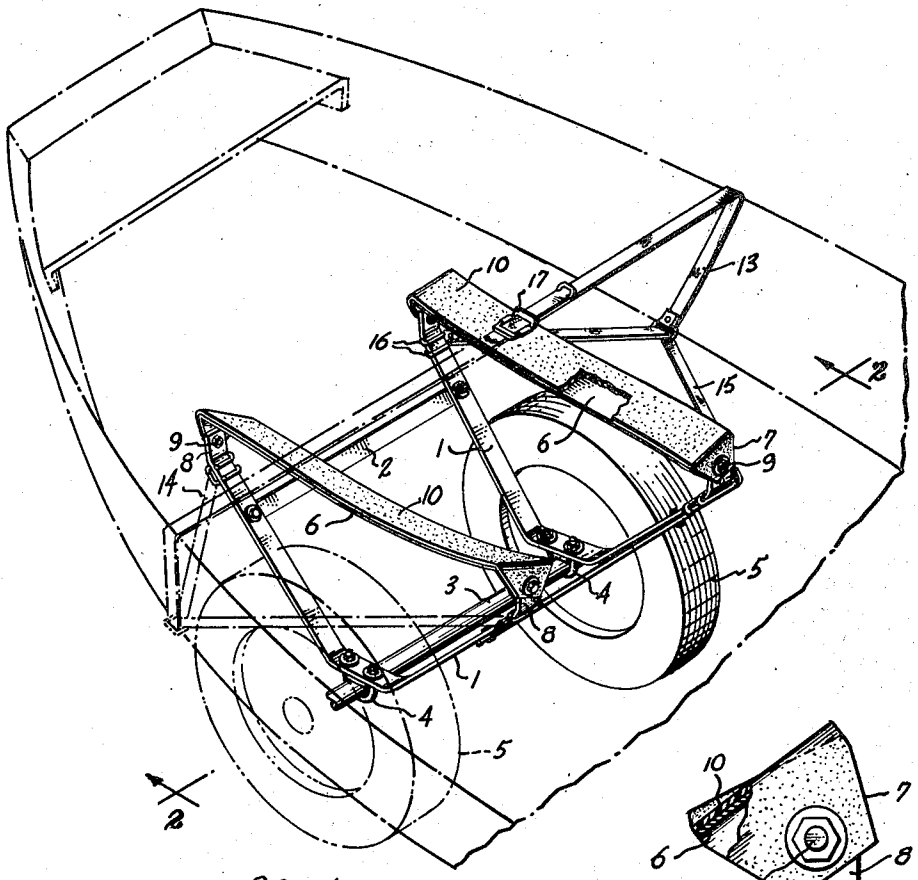


Fig. 1.

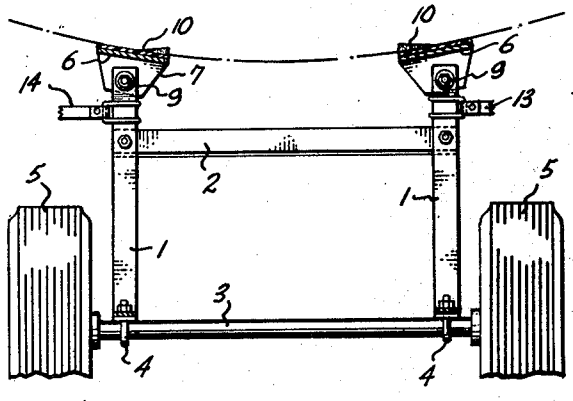


Fig. 2.

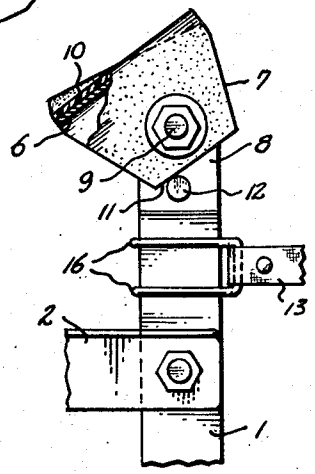


Fig. 3.

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United States Patent Office 3,188,108 Patented June 8, 1965

3,188,108

SMALL BOAT CARRIER

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Continuation of application Ser. No. 234,374, Oct. 31, 1962. This application July 15, 1963, Ser. No. 294,932
5 Claims. (Cl. 280—47.13)

This invention relates to a carrier in the nature of a dolly for application to small boats, to enable such a boat to be transported easily over the ground as, for example, along a trail, over a beach, etc., whereby a small boat, for instance one of the type commonly termed car-top boats, can be transported from a roadway for an appreciable distance over the ground to a lake shore, or the like, without the necessity for carrying it. This application is a continuation of my application Serial No. 234,374, filed October 31, 1962 now abandoned.

The carrier of this invention should be light and strong, and should conform closely, in all parts that contact the boat, with the bottom contour of the boat, so that the boat's bottom will rest evenly upon bands or straps which are the boat-contacting parts of the carrier. The remainder of the carrier should be sufficiently rigid that it is unlikely to be distorted by traveling over rough ground, and it should ride upon at least one, or preferably two, wheels whereby the boat may be pushed or pulled by hand. It should have straps or similar easily releasable means whereby it can be attached to the boat, so that when the boat rides upon the top of the car, the carrier can be attached to the boat, ready for use when the boat is lifted off the car and set upon the carrier's wheel or wheels, and the carrier can be quickly removed for launching the boat. In particular, the carrier should be largely of light elements which may flex to a certain extent, yet it should be sufficiently braced in the parts that require bracing to prevent its distortion, and so constructed that the parts mutually brace one another. The boat-contacting straps are pivotally mounted upon the carrier's frame and their pivotal movement is limited by suitable stop means.

With the foregoing objects in mind and other detailed objects such as will appear hereinafter, the present invention comprises the novel boat carrier shown in a preferred form in the accompanying drawings, and which will be described hereinafter, and the novel features of which will be set forth in the claims at the end of this specification.

FIGURE 1 is an isometric view of the carrier shown in operative relation to a boat, which is shown in phantom, with the boat and carrier in position for use over the ground.

FIGURE 2 is an end elevational view, the viewpoint being indicated at the line 2—2 of FIGURE 1, showing the carrier in position with relation to the bottom of the boat.

FIGURE 3 is an enlarged elevational view of one of the boat bearing strips and associated supporting parts of the frame of the carrier, illustrating particularly how the bearing strip will pivot and how it may be flexible torsionally as well as in bending, to conform to the contour of the boat's bottom.

The carrier is conveniently made up of two side frames 1, each of which may include fairly stiff elongated metal members (aluminum bars for example) formed generally in V-shape, with their open ends directed upwardly when in use. These two side frames 1 are interconnected in transversely spaced, generally parallel relationship, as by the cross-bracing elements 2 and by the axle 3 that is secured to each side frame at the apex of the V. The securement of the axle is, for example, by the U bolts 4. One, or preferably two wheels 5 are carried at the ends

of the axle 3, and in use support the carrier from the ground.

Although fairly stiff, the side frames 1 have some flexibility such that load acting downwardly on their upper ends will tend to spread the frame arms apart. In order to prevent this and to complete the structural integrity of the sides of the composite frame structure the upper ends of each side frame 1 are connected by longitudinally extending bearing strips 6. These bearing strips, being relatively thin are flexible both in bending and in torsion, yet are capable of withstanding heavy tension load resisting flattening of the side frames. The strips are flanged downwardly at their ends, as indicated at 7, and there they are pivotally connected by mutually aligned bolts 9 to complemental tips 8 at the upper ends of the arms of the side frames 1. Thus, each bearing strip 6 can rock on a longitudinal axis to accommodate the general slope of a boat bottom, and to prevent chafing each strip is desirably covered with a protective covering 10 of suitable material such as plastic or rubber which will serve partially as a protective cushion and partially to prevent slippage of the boat hull out of position on the carrier. While the bearing strips 6 are pivotally supported from the ends of the side frames 1, it is best not to permit unlimited pivotal movement and, therefore, each flanged end 7 is squared off at 11 and may contact a stop stud 12 projecting from a tip or tips 8 to limit tilting of the bearing strips 6, or tilting can, if desired at all, be limited in some other convenient manner.

Since it is the intention that the boat carrier be secured removably to the boat and carried thus attached as the boat is transported on the top of a car, suitable quick-releasable attaching means are provided such, for example, as the straps 13 and 14 connected to the opposite side frames 1 and extending thence over the top of the boat to the opposite side, and connected to the opposite strap element. The particular form these take is not material but, as shown, each of the members 13 and 14 is provided with a two-legged yoke 15 engageable by hooks at its ends at 16 with the arms of the side frame members 1, and to each two-legged yoke 15 is connected a single strap which extends up and over the boat to a buckle at 17 upon one thereof, to connect it to the opposite strap.

The transverse and the longitudinal bottom contour of such boats generally varies progressively. The bottom contours of one boat may vary from those of another boat. The bearing strips 6 extend lengthwise of the boat at the opposite sides of its keel and engage the boat's bottom. It is to enable them to conform to the varying contours at different parts of the length of the same or of different boats that they are made flexible both in bending and in torsion and are permitted to rock on the axes of bolts 9. As FIGURE 3 shows, one end of the bearing strips 6, when in contact with a boat's bottom, may be at one inclination with respect to the side frame 1, and the opposite end may be at a different inclination, so that the strip 6 is bent torsionally as well as in flexing lengthwise, yet in all portions of its length it conforms substantially to the bottom contour of the boat, and the boat's bottom bears on the strip over more or less of its entire length with somewhat greater pressure being exerted on the strips near their ends than in the middle. As to longitudinal bending of the strips 6, this is permitted by the limited flexibility of the side frames 1.

The manner of use will be apparent. With the boat inverted, the carrier is applied to its bottom, or the boat may be set upon the carrier while the latter is upright. Strap arrangements 13 and 14 are engaged with the respective side frames and passed over the sides and top of the boat to be joined at 17 and drawn tight. This se-

cures the carrier to the boat, and the boat may be carried inverted upon the top of a car, with the carrier in place. Arrived at the end of the road, the boat is taken off the car, set down upon the carrier supported by its wheels 5, and may then be pushed or pulled by hand in the direction of its length over ground. It may be lifted over obstructions, since the carrier adds but little to the load, and in this way it can be taken to a launching spot at the shore of a lake or other water in a simple and convenient manner. There the boat carrier can be removed quickly from the boat, and being light, it can be stored in the boat and will not weight the boat down.

Although in the main, bolts and nuts have been shown for securing together the various parts of the boat carrier, it is obvious that these might be welded or riveted together for the most part, as would be appropriate at any given location, and such changes in detail are to be understood as within the spirit of this invention.

I claim as my invention:

1. A boat carrier comprising a frame structure having at least one ground-engaging wheel mounted thereon and projecting beneath its lower portion, said frame structure having transversely spaced, generally upright opposite side frames each terminating in upper portions spaced to underlie a carried boat at longitudinally spaced points at the corresponding side of the boat, said side frames being, at least in part, of material that is flexible, an elongated strip of material extending between and pivotally mounted upon the spaced upper portions of each side frame, to tilt relative to the latter about a longitudinally directed pivot axis, and in position to engage the bottom of a supported boat, said strips being each of thin material that is resiliently flexible both torsionally and by bending, between its frame-supported ends, to be distorted together with the side frames by the weight of and conformably to the bottom of the supported boat.

2. A boat carrier as defined in claim 1, wherein said part of material that can flex is at the upper ends of the side frames, to permit their approach, the flexible strips joining such upper ends preventing their separation under the load of a supported boat.

3. The boat carrier defined in claim 2, including detachable connecting means engageable with a boat for securing the carrier against shifting or dislodgment on or from the boat bottom, and to maintain the flexible strips in their bent and torsionally flexed positions, as determined by their bearing upon the boat's bottom surface.

4. A boat carrier comprising upright side frames spaced apart for disposition at opposite sides of the boat, oriented fore and aft, and each including transverse upwardly directed pivot ears spaced apart longitudinally, bracing means interconnecting said side frames, at least one ground-engaging wheel supporting the carrier for movement over the ground, a band of flexible material interconnecting and pivotally supported by and extending between the pivot ears of each side frame, and by its transverse as well as its torsional flexure and its pivotal movement conforming to the contour of the boat's bottom, and means for releasably securing the boat to the carrier.

5. A boat carrier as in claim 4, wherein each band is formed with a downwardly directed and transversely extending pivot flange complemental to the respective pivot ears, and longitudinally directed pivoted pins connecting each pivot flange to its pivot ear, for pivotal movement of each end of each band independently of its opposite end.

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